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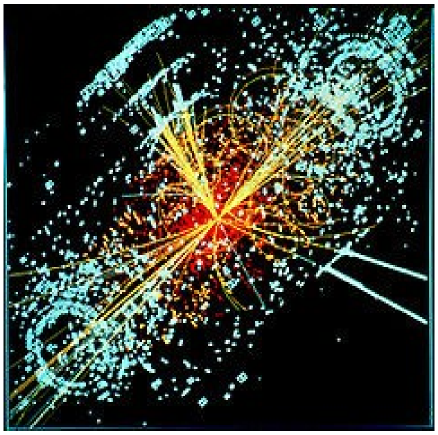
HIGGS BOSON PARADE

gets rained out



Lucas Taylor, CERN

by Miles Mathis

First posted October 9, 2012

On my birthday, September 17, of this year (2012), *Physics Letters B* and the Large Hadron Collider syndicate published a birthday present for me, in the form of a Higgs Boson claim. I suppose they know I like nothing better than a gag gift.

The strangeness begins with with the dedication of the paper to "the memory of our colleagues who have worked on CMS but have since passed away." I know I am supposed to shed a tear, but the bathos is too thick for me to take seriously. Looks more like a poor attempt at psychological manipulation. What serious scientific paper has ever started with a blanket dedication to the recently deceased? This is just an unsubtle tug on the heartstrings, the transparent attempt to put you in a sympathetic and hopefully uncritical mood. It puts you on the edge of a open grave, with bagpipes playing, so that you will accept anything that may unfold. I am just surprised we don't have an animation of a flag waving and a soundtrack with violins.

The next strangeness comes quickly, with a list of authors that must be 20 pages long. It is fully 1/3 of the entire paper. I would estimate around 2,000 authors, although I didn't bother to count them all. This must surely set a record. This is a second mind game, in case the first one didn't work. If you aren't turned to jelly by a dedication to the dead, you may be made weak in the knees by facing an army of 2,000 top physicists who are telling you in unison they have found something important. Since I have never been impressed by mobs, this second feint also failed to cow me, and I moved on to the paper itself.

Although we would expect the paper's abstract to wow us in a case like this, it tells us nothing positive.

But even here we get some misdirection. We are told the expected significance for a Higgs Boson is 5.8 standard deviations, but *not* told that the reported significance is below that. An abstract is supposed to gloss the findings of the experiment, not gloss old expectations. Putting the number 5.8 in the abstract is a cheat, because a normal science reader, expecting an abstract to report actual findings, may read this quickly and think the paper is reporting 5.8 when it isn't.

The other curious thing in the abstract is that it concludes by telling us the discovered particle "has a spin different from 1." Well, if it is a boson, that spin had better be 0 or 2 or 3, then, since if it is ½ the particle is not a boson by definition. According to the vaunted (and ridiculous) standard model, a boson must have an integer spin. But what is really curious is the uncertainty. These 2,000 physicists are claiming to have found a particle. They are claiming to know enough about this particle they have found to assign it to the ultra-famous God-particle, the Higgs, which completes their standard model, gives it a foundation, gives mass to mass, and revolutionizes physics (we are assured) in so many ways it should make your pointy head swell. But they don't know its spin? Are they reporting they know only an energy blip? Are they sure that any energy blip at that energy must be the Higgs? Based on what? Is the standard model so complete that they *know* there is only one way to create an energy blip at those energies? They will imply it, but don't believe it. If the standard model were so complete it *knew* there was only one way to create a blip at that energy, shouldn't it know the energy of the Higgs Boson, and its spin? If the standard model cannot predict a mass and spin for the Higgs, how can it predict only one way of creating a blip at high energy?

Remember, this is new territory. The salespeople tell us that themselves. We are on a new frontier. Then how is it that we know so much in this new territory that we can assign the first blip we see to a God particle? Shouldn't we spend some time with this blip, get to know it, at least know its spin and charge and lifespan and so on before we tag it with such certainty and fanfare? If this turns out to be a different God particle than the one we were looking for, it may not like being mislabeled. The gods are finicky that way.

After that we get a few pages of history, then the admission that the reported results are in fact below the expected deviation of 5.8. They first claim 5σ and then backslide into 4.1 and 3.2. The wording here is curious as well. They first say the observed local significance is 5, but then tell us the evidence is strongest in the last two states, which show 4.1σ for H→γγ and 3.2σ for H→ZZ. If the evidence is strongest at 4.1 and 3.2, how is the local significance 5? What do they mean by strongest? If your *strongest* evidence is at 4.1, then you how can you claim a deviation of 5? This is not caviling, either, since there is a big difference between a deviation of 5.8 and of 3.2. More on this below.

Those who are not professional scientists may not comprehend the number 5. Why is 5 coming up here so soon, first in the abstract and then in the introduction? Simply because 5 standard deviations is the agreed-to significance for rubberstamping a new discovery in particle physics. It is said to tell us that the discovery is almost guaranteed to be right, by 2 million to one odds. But we know they always inflate their sigmas, and never learn from their mistakes. Remember that the sigma of the recent faster-than-light neutrinos was said to be 6, and that whole announcement crashed and burned within weeks. The 500 million to one odds didn't pan out, did they? Such a failure should happen only twice every billion years, but for some reason we seem to see such failures from particle physics about twice a year.

But back to the announcement. We get three sentences of truncated results as a teaser, then a return to history. Directly after this report of deviations, we move to *section 2: the CMS experiment*. This is a couple of pages explaining the machines used. Once again, the most important information is squeezed in at the tail end of the section, where it is admitted that their supercomputers all over the world are used for, among other things, "the generation and detailed detector simulation of Monte Carlo (MC) event samples."

For readers who don't understand the import of this, I send them to my paper from last year, where I reported that at least some physicists working at the LHC were not happy with the math and models being used. A major part of that math turns out to be Monte Carlo random sampling, which is a "crude" math that physicists use only when they are desperate. Basically, when your physical models have proved to be incapable of worthwhile predictions, Monte Carlo is used to force the data to show you something out of nothing. I discovered that some of the physicists and engineers at LHC knew enough of this sort of math to realize that Monte Carlo meant the famous theorists were lost and were rolling dice. This is why the admission of Monte Carlo is important in this paper. It may have been inserted by one of the more scrupulous of the 2,000, as a signal to the rest of us.

In section 3 we get another possible signal of this sort, in the form:

> Trajectories in the tracker volume are reconstructed using a model of electron energy loss and fitted with a Gaussian sum filter.

This fact stands out since Gaussian filters blur a data set using an average weighted more toward the *center*. This is the Gaussian difference from a mean filter, where the average is uniformly weighted. This can actually increase the deviation of certain types of data, especially at hard spikes, and especially if the Gaussian is applied purposefully to do so. Gaussian filters can be used both by particle physicists and by astronomers to push data. The application of the filter would have to be studied to prove this is what is happening, and only insiders could do that, but for outsiders it remains a potential red flag. We would prefer unfiltered data.

In section 4 we find some more useful information. The four hypothetical fusion mechanisms of Higgs Boson production are discussed, which are gluon fusion, vector boson fusion, W and Z fusion, and top quark fusion. These are all completely theoretical, and rely on several of the very squishiest theories of the quantum world. Just for a start, gluons and quarks have never been seen in any accelerator, and are inferred from larger particles. But we hardly need to get into all that, since this paper admits that they are searching for the Higgs not by colliding gluons, quarks, or even vector bosons. They are colliding protons. If they are colliding protons, it must be the protons fusing in the first instance, no? They even admit that

> The cross sections for the individual production mechanisms and the decay branching fractions, together with their uncertainties, have been computed following Refs. . . .

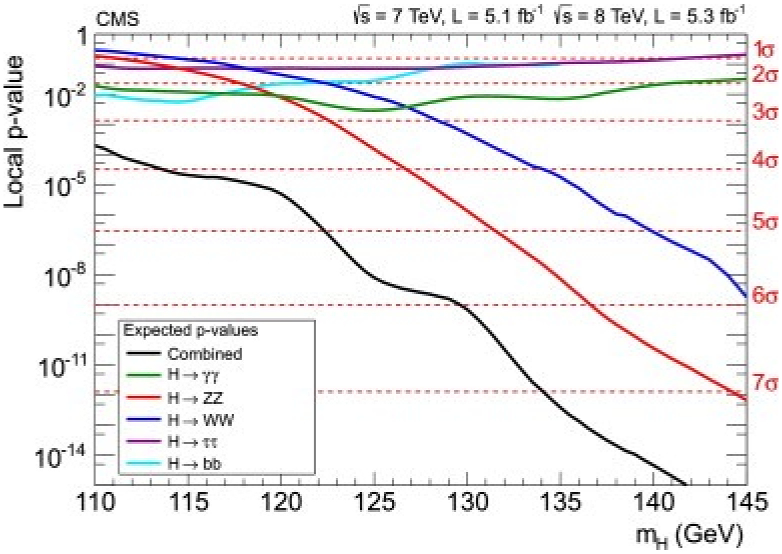
So all the gluons, quarks, etc. are found only in the computers and Refs. They aren't found in the experiments.* Why is this important? Because if they are colliding protons to create Higgs Bosons, it is hard for them to claim that Higgs Bosons are giving mass to protons. If they are building Higgs Bosons from protons, then wouldn't it be far more logical to say that protons are giving mass to Higgs Bosons? We are told in this paper that, "The scalar field also gives mass to the fundamental fermions through the Yukawa interaction." But is that what we are seeing in the data? No. This "giving of mass" is only seen in the Refs. We don't see a Yukawa interaction in the chambers, we see it in other Physical Review Letters. The Yukawa interaction is defined as an interaction between a scalar field and a Dirac field, but both those fields are abstractions. They don't exist in chambers, and *can't* exist in chambers, since they are composed of virtual interactions, spontaneous symmetry breaking, and other mythical beasts of that nature. In other words, they are outside all possible data, are not falsifiable, and have never been confirmed to a level of confidence of even 1%. The level of confidence of all theories containing symmetry breaking, virtual fields and particles, and vacuum expectation values is 0% and must always remain 0%. If you have any level of confidence in such theories, it is level you have manufactured in your head, based on something besides physical data.

Also curious is the four main mechanisms. Aren't they missing one in this section? What of the decay into bb, which is the most likely at this energy according to the standard model (see figure 2 below). Why were we told of five mechanisms in a previous section, but only four here? Are we being weaned off the bb decay?

The rest of section 4 is a description of computer simulations. It should concern you that so much of the Higgs search has depended on computer modeling. Computer modeling is notoriously suspect even in the firmest fields, since it encourages and abets faking. But here in particle physics, which is not at all firm, modeling is used in the same way Monte Carlo is, to manufacture whatever the theorist or modeler wishes to have. It is used to back-engineer and forward-engineer virtual data, and the experiments themselves are then fit to the models. Of course this is upside-down, since the data should be primary. You can almost always find a way to fit data into a model after the fact, but since any number of other models could also force the data to fit, you have no way of choosing between competing models.

The way the standard model solves this is by disallowing competing models. The most famous theorists provide the models, these models are called standard, and then all work by computer specialists and engineers is then focused on fitting these models. Data that does not fit the famous models is ignored, and data that can be made to fit the models is glorified. Holes and contradictions are either blanketed over or filled with high-sounding nonsense. We have already seen that here, since the Yukawa interaction is a colorful example of this high-sounding nonsense.

Figure 1 is an important graph showing the probability (p-value) “for a background fluctuation to be at least as large as the observed maximum excess.” Although these probabilities are calculated from a modified frequentist criterion which is itself suspect (due to the uncertainty of the input), the probabilities are still quite high, as you see. Although they try in the paper to divert you into combined p-values, it is the individual values that are important. The combined p-value would be used only in the case that we had confirmed detections of all five Higgs fusions at the same energy in the same experiment, but we don't. We may assume we have only one, at best, so that we should be looking at the specific p-value. At 125GeV, the probabilities for the “strongest” evidence—of the $H\rightarrow\gamma\gamma$ and the $H\rightarrow ZZ$—are about 1/100 and 1/1000. That means that the probability this blip is noise is considerable. An admitted probability of 1/100 in an experiment like this with so much uncertainty is very high. A sigma of 5 demands certainty in the range of 2 million to 1, remember, not 100 to 1.



Also of concern is that the 2,000 authors are admitting that the "strongest" evidence is for the diphoton Higgs, which is drawn with the green stripe here. The text to this figure admits:

> The expected signature in these channels is therefore a narrow resonance above background, with a width consistent with the detector resolution.

I take this to mean that until we reach energies above 145GeV, the expected detections aren't much above background. We see this in the way three of the colored lines stay in the 2σ range. For this reason, we can imagine most of the authors would have preferred to wait for a detection of the ZZ Higgs at higher energy, where a more significant detection could be claimed. The LHC has a capability of 14TeV, so 125GeV is actually very low. It isn't far above the Z detection at 91GeV. Beyond that, this low energy range has already been scanned by all the older and smaller accelerators. It is odd for many reasons for them to claim a detection at 125GeV, not the least of which is that it fails to justify the size of the LHC. The Tevatron at Fermilab has been capable of 1TeV since 1983, and 125GeV is 1/8th of that energy.

As it turns out, the Tevatron is also claiming detecting of the Higgs now, although you don't hear as much about that. In July of 2012, Fermilab announced that it had finally collated reams of data back to 2001, showing a 550 to 1 probability (<3σ) of Higgs detection. Coincidentally(?), the LHC also decided to leak its own detection **two days later**, scaling the leak up into this 2 million to 1 certainty by September. This timing should lead any scientific mind to ask if we really have a coincidence here. I would say the most logical explanation is that the LHC couldn't risk being scooped by Fermilab, and decided to rush something into print, the computer models be damned. The LHC was built to find the Higgs after all, and if Fermilab had been allowed to take the credit, all future funding would be thrown into jeopardy. My guess is that since Fermilab was closing and the physicists there who weren't retiring could only hope to work at the LHC in the future, it was agreed by everyone to let LHC take the credit. A press kit was quickly cobbled together and the announcement was thrown to the media, ready or not. The sigma was inflated to five by any means necessary, and the rest is a joke.

But the probability (σ about 10) is that Fermilab's announcement was *also* a political move, an attempt by someone to go out with a bang, perhaps without the blessing of the majority. What if these retiring Fermilab physicists wished to justify their life's work and undercut the LHC at the same time? After all, it is the LHC that had led to the closing of the Tevatron. No doubt there were some or many at

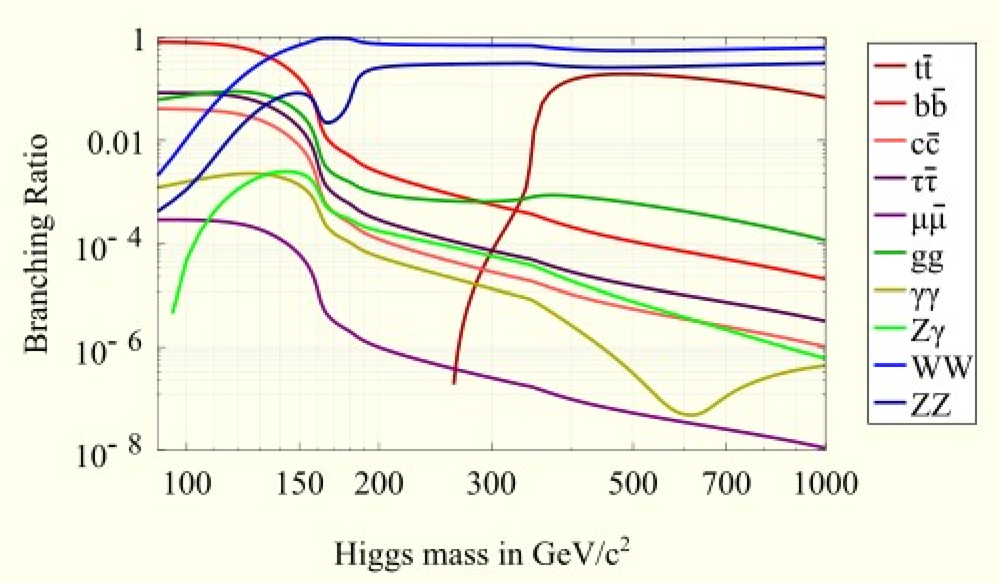
Fermilab whose greatest joy would have been scooping LHC. If they had some data indicating a Higgs detection, why not publish it? Nothing to lose and everything to gain.

Only the insiders can know the full truth, but all of us should find the timing extremely suspicious, both the timing of the Tevatron announcement—right at the closing of the accelerator—and the LHC announcement—two days after the Tevatron announcement. If it looks like politics, smells like politics, and tastes like politics, it is probably politics.

Speaking of the Z boson, you should ask yourself how a Higgs Boson at 125GeV can “decay” into two Z's, each of which is at 91GeV. That would be like a 10-ton meteorite decaying into two 8-ton meteorites. Where is the other 57GeV coming from? Actually, the paper tells us one of the Z's is off-mass shell. What does that mean? It means the equations don't obey normal mathematical rules, like sums and differences. Basically, on-shell means the equations add up, and off-shell means they don't. But modern physicists think they can justify faulty equations and predictions just by giving them a name: off-shell. Off-shell is linked to virtual particles and other fluffy ideas, like symmetry breaking, borrowing from the vacuum, and so on. In this way, 63% remainders and misses can be dismissed as “off-shell.” Although the standard model contains these off-shell remainders all over the place—and although one very important one is off-shell by 120 orders of magnitude (see my paper on the vacuum catastrophe)—all papers like this one at PRL lead with the assertion that the standard model “provides a remarkably accurate description” of the quantum world. How big would the vacuum catastrophe have to be for the standard model *not* to provide a remarkably accurate description? If 120 orders of magnitude is “remarkably accurate,” what order of failure would be remarkably inaccurate?

It is also strange seeing a Higgs Boson at 125GeV decaying into two photons, each of which has an energy of around 100keV. A Higgs should decay into about a million x-rays, so where is the rest of the energy?

We will come back to these questions later, but for now let us return to the diagrams. The following diagram comes from Wikipedia, but it is related to figure 1 above.



This figure shows the likelihood of different Higgs' decays at various energies. This figure is determined by the standard model, and it comes from factors we are told are "fixed" by the theory.

Quantum mechanics predicts that if it is possible for a particle to decay into a set of lighter particles, then it will eventually do so. This is also true for the Higgs boson. The likelihood with which this happens depends on a variety of factors including: the difference in mass, the strength of the interactions, etc. Most of these factors are fixed by the Standard Model, except for the mass of the Higgs boson itself. For a Higgs boson with a mass of 126 GeV/c^2 the SM predicts a mean life time of about 1.6×10^{-22} seconds

If we study the 125GeV range, we see that the likelihood of a diphoton γγ Higgs is quite low, being about .2% of all detections. The ZZ Higgs is little better, at about 1% of all detections. And yet this paper at PRL is claiming those decays as its "strongest evidence." Will we be told why the least likely decays were found first, and how this can confirm "fixed" standard model predictions that bottom-antibottom quark Higgs should be created 56% of the time, or 280 times more often than diphoton Higgs? Where is the bb Higgs?

Section 5 begins with this:

In the H→γγ analysis a search is made for a narrow peak in the diphoton invariant mass distribution in the range 110–150 GeV, on a large irreducible background from QCD production of two photons.

This is informative because it reminds us that in order to identify a Higgs from a diphoton pair, the physicists have to cross out all photon pairs created by other means. To do this, the physicists must *know* all other means of production of photon pairs, as well as their likelihood to stack. It is very unlikely they do know this. As for the first point, it is nearly infinitely unlikely that we have discovered all quantum interactions that might produce photon pairs. It is even more unlikely that we have discovered all quantum interactions that might produce photon pairs at this high energy. Why? Because, even assuming the Higgs has just been discovered, *the Higgs has just been discovered*. What I mean by that is, in the best case scenario we have *just discovered* this production of a photon pair by the Higgs. Which means last year we did not have this knowledge. If our knowledge was incomplete last year, why do we assume it is complete this year? We keep discovering larger and larger particles. Might there be even larger fused particles than the Higgs, and might these larger particles break up in ways unknown to us, creating photon pairs?

As for the second point, given a field rich with collisions, the possibility exists that photon pairs could stack at a given point over a short time, either affecting sigma or skewing the tree. In some cases the computers might be able to identify these spikes as anomalies, but without complete knowledge of the field, no computer can correctly discriminate every blip in a field. No computer has complete knowledge of a field; nor does any theorist.

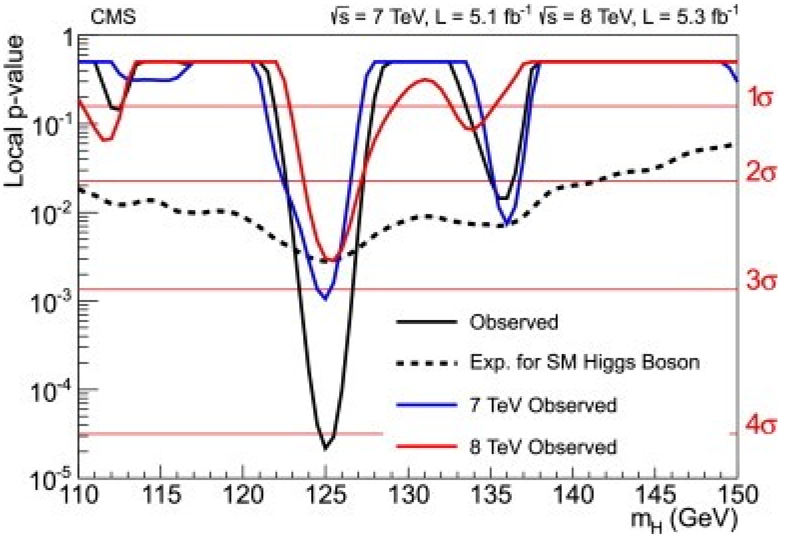
Since it is impossible to mask all noise in an experiment without knowing the sources of all noise, modern physicists have an unattractive tendency to read unmasked noise as positive data. They implicitly (or often explicitly) claim all knowledge of the field, and use this as indication that the anomalies they are detecting must be significant. If you study recent history, you find they are almost always wrong. And you find they almost always overstate their certainty, usually by very large margins. And you find that they never learn a lesson from their failures, since no matter how many times their 99+% certainty fails, they keep coming back with higher certainties with even poorer data sets. The probability is near 100% that this is what is happening with the Higgs.

In section 5, we get another curious admission, which may have been planted by one of the more scrupulous of the 2,000:

> The diphoton events not satisfying the dijet selection are classified into five categories based on the output of the BDT, with category boundaries optimized for sensitivity to a SM Higgs boson.

The entire paragraph in which this is embedded is series of bald admissions that everything in the experiments are being pushed to create a Higgs detection. You will say, “Of course they are optimizing sensitivity to the predicted particle. That is why the LHC was built!” But anyone can see it has become much more than that. In a healthy physics, we would expect free experiment to inform theory. Here, we are seeing theory all but determine experiment, with the computer models not only being predetermined by theory, but the experiments themselves being predetermined by theory. The experiment has no freedom to show any data except the data that is being sought. This is why the Higgs has been so “elusive”: if you optimize the sensitivity of your machines for something that doesn't exist, of course you are going to get decades of nothing. But if you *must* find that non-existent particle, eventually you will be forced to optimize the machine's sensitivity to background noise. This paper is just proof that if you apply enough filters and boosters and focusers and dampers to a data set, you can find just about anything you want. That is what physics has become: not the discovery of data, but the creation of it.

As proof of this, we only need look at figure 2:



That is astonishing because it inadvertently(?) shows us some big background noise as well as showing us how the sigma is pushed. To start with, you aren't allowed to add sigmas for similar separate experiments, creating a total sigma like this black line. As you can see, they are conflating sigma with probability, and they even create a strange chart with sigma on one side and probability on the other, to encourage this conflation. Yes, at a stretch you could add the probabilities, since it might be argued that the experiments at 7TeV and 8TeV were different enough merit separate probabilities. They would argue it is unlikely that background noise would peak in the same place in the two experiments. Maybe. Except that not all background noise is random. But that is not the question. The question is sigma. Sigma is a measure of deviation or data strength, and can't be additive. If it were, they could just stack a lot of high-probability, low blip data to get a compound of low-probability, high blip data.

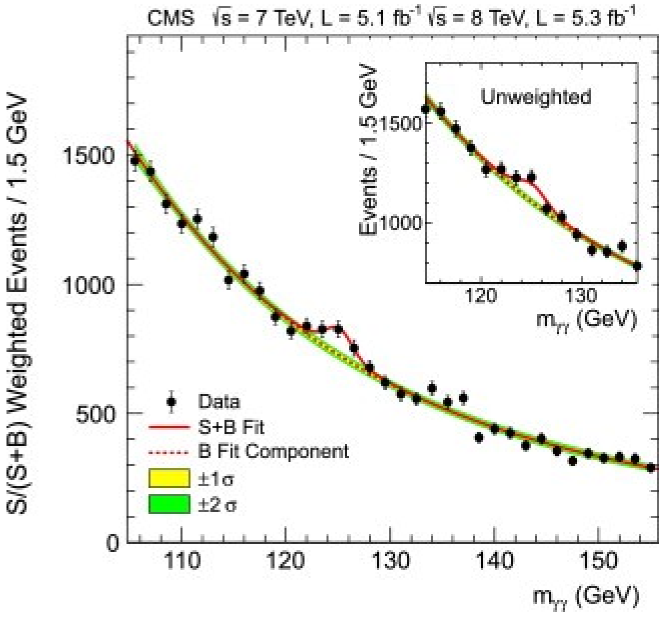
For instance, what is to stop them from charting four experiments at 5TeV, 6TeV, 7TeV, and 8TeV, all with sigmas below 2, and adding these to an observed total sigma above 4? And so on?

We saw above that they had backpedaled from 5 to 4.1, and here we see them backpedal from 4.1 to 3, which is their "strongest evidence" reported in this chart.

But the chart gives up the farm in another way. Notice that the blue line performs another big blip at about 136GeV. It has a sigma of about 2.4, compared to 3 for the largest blip at 125GeV. And yet it is ignored as background noise. No detection is being claimed at 136. This is very strange, because if they are excluding maxima only 25% below detection, this also affects sigma. Sigma is a deviation from average, remember, and this second blip brings the average way up. If we average from 120 to 140, it brings it up a lot, but even if we average across the chart from 110 to 150 (which is all the visible data here), it brings it up considerably. It looks like they are taking the average as the minimum value of the red and blue lines, but that isn't right. The blip at 125 has to be measured not only against the minimum, but also against the other maximum at 136. It doesn't look to me like they are doing that.

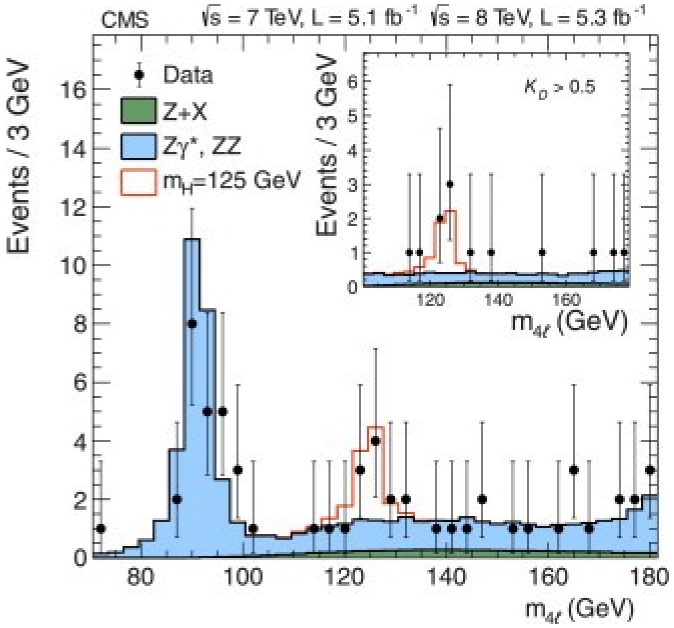
Just think about it. If you have one big maximum, the probability it is noise is fairly low. That is what these physicists are relying on. But if you have two big maxima, the probability that one is significant and one is insignificant is low. Obviously, the more maxima you have, the more likely it is that all of them are either significant or all of them are insignificant (noise). The second maximum lowers the significance of your first maximum. In terms of sigma, a second maximum lowers the sigma of your first maximum. It does this by raising the average against which sigma is measured.

But they saw me coming, because they then create figure 3 to deflect you away from these obvious truths.



This figure is a diversion in several ways. First, they get your mind off that big blip at 136 by refusing to draw any of the red or green lines through it. Second, they give you a chart-within-chart closeup that ends at—you guessed it—135. They don't even have to draw the data at 136 there. Third, amazingly, they have been able to actually *move* data by applying best-fit methodology. Look at the data at 126, the dot right after the 125 peak. When it is unweighted, it is down with the data at 128. But after being weighted, it moves up to a position with half the significance of the 125 peak, allowing them to draw a smooth curve with the red line. How convenient! I didn't realize you could actually move data to another energy level with a best-fit! I have been misinformed, apparently. I had been taught that curve fitting was fitting the curve to the data. But here, the data is fit to the curve.

If the γγ data was weird, the ZZ data is superweird. We get a lot of misdirection about four-lepton mass peaks and gluon-gluon and quark-quark processes, but when it comes to the figures, we get a total meltdown. This is figure 4:



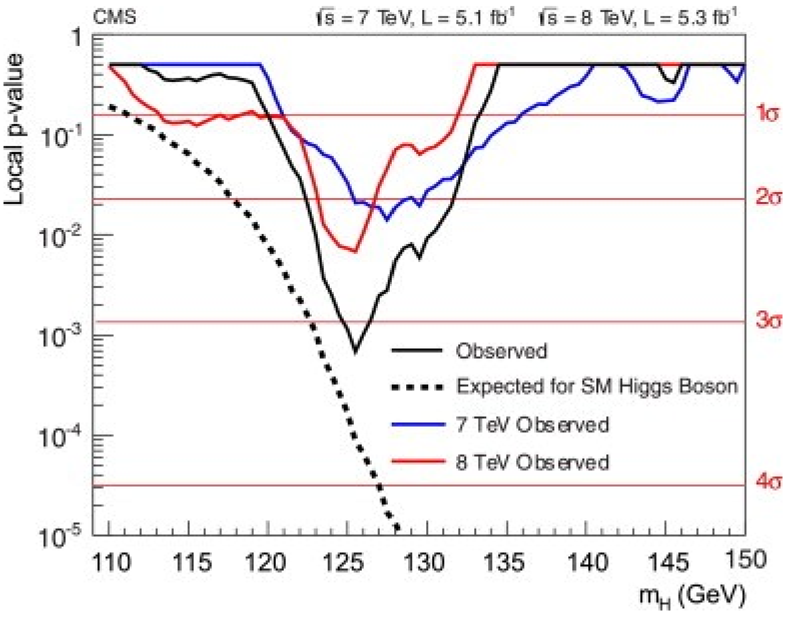
First of all, notice that they are declining to lead with the chart with sigma on the vertical, as with the previous charts. Instead we gets events/GeV. If we follow only the data and ignore the rest, we see a much stronger indication of the Z at 91GeV than of the Higgs at 125. The peak is about twice as tall. But more important is the data being ignored at 94, 96, 99, 122, 165 and 180. The data points at 99, 122, 165 and 180 all hit 3 on the chart, almost precisely. That is four points at 75% of the peak at 125, which must bring its sigma down considerably, as I have reminded you above. Then we have the two data points at 94 and 96, charting here at 5. The blue color is an effort by the graphers to give those points to the Z at 91, but the Z is at 91, not at 94 or 96. Even if we subtract out the Z at 91, we have to give those two points at 94 and 96 to background, which utterly destroys any sigma the peak at 125 might have had.

And what have they done in the inset chart? They get rid of the peaks at 94 and 96 by using a "statistical analysis that only includes events with $m_{4\ell}$>100GeV." Convenient, since it saves them from having to explain how the Z at 91 is causing those peaks. But how did they lose the data at 165 and 180?

A kinematic discriminant is constructed based on the probability ratio of the signal and background hypotheses, $K_D=P_{sig}/(P_{sig}+P_{bkg})$.

What does that mean? It means they are using a hamhanded trick to get rid of the data at 165 and 180. Although ditching data based on its background is absurd, this trick succeeds in getting rid of inconvenient peaks which would otherwise destroy the sigma values.

But do our 2,000 admit any of that? No. A couple of pages later, they finally give us a sigma chart, and it is both truncated and manipulated.



We get the black line, which I have already shown is a cheat. So we must backpedal from 3.2 to 2.4, the peak of the red line. But again, the sigma is inserted in a dishonest way, by ignoring other peaks below 110 and above 150. If we include the data peaks at 94, 96, 99, 165 and 180, the peak at 125 has almost no sigma at all. It is hardly above background.

I don't really understand why they bothered to fudge this ZZ data, since they aren't even claiming a solid ZZ detection in this paper. All the Higgs chatter is about the claimed detection of the γγ. Since this also applies to the WW and quark decays, I won't even bother to analyze them. I suppose they thought they needed to pad this paper out a bit, so that the 2,000 authors only took up 1/3 of the paper, instead of ½ or more. If the paper had included only the γγ claim with its figures, the 2,000 authors would have been 2/3rds of the total paper, which would have been embarrassing.

So we have seen that the 2,000 authors have not only failed to justify the 5σ claim, they have fudged the data in many other ways as well. But even if they hadn't, none of this would prove a Higgs. Say they had been able to justify a 5σ at some energy. Would that prove a Higgs? No. It would only indicate a particle at that energy. To prove a Higgs, you would have to justify all the other claims of the theory, such as symmetry breaking, vacuum energy, gauge invariance, and so on. But as I showed in my paper on electroweak theory, it is impossible to justify these things because they are just fudged equations and contradictory theory.

You see, the gauge math, chosen mainly to give an *ad hoc* order to data and proposed data, ended up taking on a life of its own. The manufactured symmetries it contained suggested certain qualities for predicted particles, and when these particles turned out to have different qualities, the physicists rushed to the conclusion that they needed to break the symmetries contained in the gauge math—in order to save the earlier math and theory. In other words, presented with crushing negative data, these physicists refused to give up either their theory or their math. Instead, they chose to jerry-rig it. They simply added another layer to the cake, a layer they have called symmetry breaking. It doesn't really break the symmetries in the math, since they still exist in the original layer; it only explains why the original symmetries don't matter. It tries to explain why the first set of rules in the first layer don't really apply. To explain why the symmetry rules don't apply, the physicists break another set of rules—including the rule that you can't get something from nothing. Rather than a repair, we have a double breaking. Yes, they create free energy from the void—from nothing—and borrow just enough of this energy to fill the holes in their first layer. This is called borrowing from the vacuum, and they don't even spend much time justifying that. Since no one is policing these theorists, and since it hasn't been politic for them to police themselves, no serious justification has been necessary. They needed it, they wanted it, and that was about all the justification we have ever gotten. Basically, their logic is that if they borrow it only for a split second, it doesn't really count. That is why they like the new mesons and bosons and so on: they last for 10^{-24} seconds or something, so the physicists can claim no rules have really been broken. They rely on the fact that people can't comprehend time that small, so they tend to dismiss it.

But of course that isn't the way physical laws should work, or do work. You can't give the vacuum a positive energy and still call it the vacuum, since it doesn't fit the *definition* of vacuum. And the same applies to time. You can't claim that any time is so small it doesn't matter, because that doesn't fit the definition of time. For very small particles, very small times are very significant. Claiming 10^{-24} seconds isn't significant at the size of a photon is like claiming that a day isn't significant to a human being. It simply isn't true.

I am not spinning the history of physics here for my own benefit. All I have said is freely admitted by particle physicists. This is how they have chosen to put it at the Higgs page at Wikipedia, which has recently been rewritten by the top insiders to reflect current events:

> Gauge invariance is an important property of the Standard Model. However, fermions with a mass term violate the gauge symmetry of the electroweak force. . . . W and Z bosons are observed to have mass, but a boson mass contains terms which clearly depend on the choice of gauge and therefore these masses too cannot be gauge invariant. Therefore it seems that none of the standard model fermions or bosons could "begin" with mass as an inbuilt property except by abandoning gauge invariance. If gauge invariance were to be retained, then these particles had to be acquiring their mass by some other mechanism or interaction.

There it is. Neither fermions nor bosons act like they should. The data doesn't match the theory or the predictions of the math. Do they therefore get rid of the theory and math? No, they borrow from the vacuum to break the math, and then borrow mass from one particle to give it to another. Since fermions can't get their mass from gauge invariance, they must get it from bosons. This is why the Higgs is called the God particle: it “gives” mass to smaller particles. Fermions have no mass in the math, but they do have mass in the field after the Higgs grants it to them. We have quantity and quality swapping all over the place: not so much like heaven as like an orgy.

This is just a small sample of the horrible mess that particle physics has now become. Old errors are never fixed, they are just pasted over with another layer. We have so many layers now, physics is like a leaning tower of Babel, with a lot of squishy languages and maths piled on one another, each one about as firm as sponge cake.

It is for this reason that the Higgs announcement is almost beside the point. The squishy tower of physics stopped being able to contain new data decades ago. There is no clean drawer in which to put any new data. Every drawer is already filled with goo.

This is exactly why I gave up on the standard model about a decade ago. I then went back to the early decades of the 20th century and started over from scratch. I not only threw out the gauge math as intrusive, I pulled apart the Lagrangian itself, showing how it was misunderstood at the ground level. I rewrote the Schrodinger equation, I corrected the Bohr equations, I rebuilt the nucleus on a strict mechanical model, I made spin at the quantum level real, I showed what charge was as a matter of mechanics, and I discovered the basic quantum spin equation.

After doing that, not only was I able to explain the vacuum catastrophe—the 120 orders of magnitude error of the standard model—but I was able to solve a lot of other fundamental problems as well. Most importantly, I was able to solve the unification problem, showing not only how charge exists in the field equations, but how gravity exists at the quantum level.

As for this problem, I was able to show long ago how these large particles are created. It isn't the Higgs that gives mass to fermions, it is fermions that give mass to the Higgs (and all other larger particles). The proton—a fermion—creates the large particle by *becoming* the large particle. Remember, these proton accelerators have to take the proton up to 125GeV in order to create a particle at 125GeV. Strange that no one ever thought to ask if the particle they were seeing and the proton they had accelerated were the same particle.

Due to inconsistencies in the gauge math as well as in Relativity, the particle physicists never even gave that idea a moment of serious consideration. They had decided long ago that the proton was either a discrete particle in the accelerator, or it was three quarks. As such, it couldn't possibly be the source of all the breakup they were seeing.

It wasn't only quark theory that told them this, it was also Relativity, which provided them an equation for mass increase that required no mechanics. SR told them the mass increase was due to speed alone, so they had no need to consider whether or not the proton was also gaining spin or spins.

In other words, the Relativity equation for energy increase was too simple. It was overcompressed as a matter of mechanics, giving them the right numbers but no explanation of the method. Because the equation worked, they had no reason to question it. Because the equation used a velocity increase, they had no reason to question it. But I have shown that part of that velocity is spin velocity. Since Einstein took no account of this, no one since him has taken any account of it. It has been utterly ignored up to this time.

In a nutshell, what is happening is that as the proton is accelerated, it suffers more collisions with the charge field—with real (though dark) photons. Yes, charge is what is used to accelerate it in the first place, but ambient charge also exists in the chambers—charge the current models have no way to account for. Even if the physicists were completely successful in creating a chargeless vacuum to start with (which they weren't), as soon as they start accelerating the proton, charge is put into the chamber. That is how the proton is accelerated! Since protons are looped, the more loops they take the more ambient charge stacks up in the loop. The proton then interacts with following charge (which is accelerating it) and leading charge. Both forms of charge increase the spin on the proton. Any inconsistency in following charge will increase spin, and any inconsistency is leading charge will do the same. The longer the proton is accelerated the more spin it takes on.

But due to the speed limit of c, no spin can exceed c. To deal with this, I have shown that the particle can stack on another spin, outside the gyroscopic influence of the inner existing spin. Of course the proton can only do this in very high energy situations, since it is already large—the proton already has an energy of over 900MeV to start with. As it takes on these larger and larger spins, the proton itself becomes larger and more complex. It has many layers of orthogonal spins, spin within spin.

Nor are these spin combinations equal. Charge field variation creates a large number of giant protons, of equal total energy but with different stacked spins. I showed in an earlier paper that this was already true with the proton at rest, which already has 32 possible forms. The proton is not three quarks, it is four spins, with the outer three spins doing what the three quarks now do. These 4 spins have 32 possible combinations, and this spin math mirrors the current gauge math in many ways, as I show in that paper. But when we get to 125GeV, we no longer have four spins, we have eleven: seven above the normal proton. This gives us 242 possible combinations, or 242 different protons, all with approximately the same energy. For this reason, the proton can breakup into a vast array of smaller particles, depending on where the hit takes place.

My theory also shows where the photons are coming from. Every particle can be broken down into photons, since the photon is the nut at the center of every particle. If you strip a proton or meson of all its top-level spins, it becomes an electron. If you strip an electron of all of its top-level spins it becomes an X-ray. And you can even strip X-rays of outer spins, making them into smaller photons. There may be some smallest photon that cannot be further stripped, or the layering may go on below where we can currently measure. I have no theory on that because I have no data on that.

Interestingly, my quantum spin equation predicts a particle at about 120GeV, since that is a straight doubling of the proton. Just multiply the proton by 2 seven times. The extra energy can also be explained in straightforward ways, without any of the mess of the standard model. Like this: Say some proton has already had a collision, and has either been partially spin stripped or has simply been de-accelerated. It might then take lesser spin values. If we multiply the proton by 2 twice, we get 3,756MeV. So if we find a tree-top at 125GeV, it is probably created by a proton at 120.1GeV meeting a proton at 3.76GeV. If you study my quantum spin equation, and the way I applied it to the W and Z, you will see that we can easily explain other numbers as the proton colliding with slightly more exotic accelerator trash. For example, the ignored peak at 136 in *figure 2* above can be explained as 120.1GeV + 15GeV. Multiply the proton by 2 four times for the second energy.

So you see, I am not completely disregarding the data from LHC. I find the presentation very sloppy in this PLB paper, and I find the standard model to be embarrassing. But I have no doubt that our accelerators are creating short-lived exotic particles.

Added December 17, 2012: The LHC is already confirming my predictions above, since they have now published an announcement of two (or possibly two *more*) Higgs at 123.5GeV and 126.6. See my update to this paper, which shows the math for building those particles from my quantum spin equations, with no need for a Higgs field, broken symmetry, or any of the rest of the rigging of the standard model.

Added November 9, 2014: Mainstream physicists are already admitting the Higgs announcement may have been premature. *In Physical Review D*, Frandsen et al. show that no conclusive evidence was provided that the Higgs had been found. Which means the committee rushed the Nobel Prize to Peter Higgs in 2013, based on nothing. This is why they used to wait several years—at least—before they gave Nobel Prizes in physics based on experimental findings. It usually takes years to repeat and confirm this complex data, and to ride out the period of political horntooting. So why has the waiting period been jettisoned? Why the immediate publication in the mainstream press and the lighting quick awarding of million dollar prizes? You really need to ask yourself that question.

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*Yes, several claims of deconfinement of quarks and gluons have been made, but these claims are just as squishy as everything else in current physics. They have data they *interpret* to be these things, but an interpretation is very different than a straight discovery.